

Remarks/Arguments:

With the present response, claim 1-33 are pending. A portion of claim 26 has been canceled and the canceled subject matter has been incorporated into claim 25.

Claim Rejections

Claim rejections under 35 U.S.C. 102(b)

Claims 10, 11, and 13 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,082,247 to Owens et al. ("Owens"). The Office Action states that Owens discloses a knife gate comprising a valve body (26) comprising mating halves, a flow channel (Fig. 10), a knife gate (22), a gate seal (24) lining a perimeter of the channel having an integral gasket (64) extending in a direction opposite the sealing surface, and wherein the gate seal (24) is an elastomeric material (col. 3, lines 44-45). Applicants respectfully traverse this rejection.

Amended claim 10 recites, *inter alia*, a knife gate valve comprising a valve body having mating halves that, in an assembled configuration, define a flow channel extending through the body. A knife gate is adapted to slide within a gate channel between the halves of the valve body into an open position that allows flow within the flow channel and a closed position that blocks flow within the flow channel. A single gate seal is mounted in a gate seal chamber defined by the mating valve body halves. The gate seal has a sealing surface lining a perimeter of the gate channel for creating a seal with a perimeter of the knife gate. An integral gasket extends from the gate seal in a direction opposite the sealing surface and is compressed between the body halves.

Owens discloses a knife gate valve having a first gate seal 24 that seals an upstream face of a knife gate 22 and a second gate seal 24 that seals a downstream face of the knife gate 22. See Fig. 11 of Owens. Each of the two seals 24 are wholly disposed on either the upstream side or the downstream side of the knife gate 22.

In order to anticipate a claim under 35 U.S.C. §102, the reference must teach every element of the claim. M.P.E.P. §2131. Furthermore, "the identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) and M.P.E.P. §2131.

Applicants respectfully submit that Owens fails to disclose or suggest the claimed structure of a single gate seal. Owens requires two gate seals 24 to seal his knife gate 22. Such a sealing mechanism opens the possibility of leaks between the two gate seals 24. As seen in Fig. 9 of Owens, a leak of operating fluid from between the two seals 24 would leak out the seat exit 144 and out of the valve 20. The present invention of claim 10, as amended, recites that the single seal lines the perimeter of the gate channel. The claimed structure differs substantially from that of Owens by using a single seal instead of multiple seals, thus eliminating a potential leak path from the valve.

For at least the above reasons and in view of the amendment to claim 10, reconsideration and allowance of claim 10 is respectfully requested. Claim 11 depends from claim 10, and Applicants respectfully submit that claim 11 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 10. Applicants respectfully request reconsideration and allowance of claim 11.

Claim 13, as amended, recites, *inter alia*, a single gate seal for mounting in a gate seal chamber defined by mating valve body halves of a knife gate valve. The knife gate valve comprises a flow channel and a knife gate slidable in a gate channel between an open position that allows flow within the flow channel and a closed position that blocks flow within the flow channel. The single gate seal has a sealing surface lining a perimeter of the gate channel for creating a seal with a perimeter of the knife gate in the closed position, and an integral gasket extending from the gate seal in a direction opposite the sealing surface and compressed between the body halves.

Owens is discussed above. Owens fails to disclose or suggest a single gate seal, as is recited in amended claim 13. As seen in Owens Fig. 9, Owens requires two seal portions 64, each extending from a separate valve line 24 to be compressed between body halves 26. A single seal portion 64 would fail to be compressed between the body halves, resulting in a failed seal and a leaking valve. For at least the above reasons and in view of the amendment to claim 13, reconsideration and allowance of claim 13 is respectfully requested.

Claims 25, 26, and 28-30 stand rejected under 35 U.S.C. 102(b) as being anticipated by German Patent DE 25 06 140 A1 to Sistag ("Sistag"). The Office Action states that Sistag discloses a chest seal for mounting in a chest seal chamber of a knife gate valve comprising a flow channel (4), a knife gate (93), at least one body member (20) having an expandable

sealing surface (191), a chamber (Fig. 5) holding a packing (15), wherein the chest seal (20) surrounds the knife gate (93), having an expandable sealing surface (191) that is rounded and convex (similar to seal in practice in Fig. 4), and wherein the seal is elastomeric. Applicants respectfully traverse this rejection.

Claim 25 recites, *inter alia*, a chest seal for mounting in a chest seal chamber of a knife gate valve. The knife gate valve comprises a flow channel and a knife gate slidable between an open position that allows flow within the flow channel and a closed position that blocks flow within the flow channel. The chest seal peripherally surrounds a knife gate slot for receiving a perimeter of the knife gate. The chest seal comprises at least one body member having an expandable sealing surface for creating a seal with the knife gate and at least one injection chamber adapted to receive an injectable packing. The chamber has a cross-sectional area that is completely surrounded by the body member.

Sistag discloses a longitudinal seal, shown in Fig. 3, with a first seal being inserted into a wide cross seal groove 5 and a second seal being inserted into a narrow cross seal groove 9. The two seals are used to seal each respective side of a valve plate 3. Since one groove (5) is wide and one groove (9) is narrow, it is apparent that two separate sized seals are required to be inserted into each respective groove 5, 9. Sistag therefore requires two seals to seal his valve plate 3. Further, these seals only seal a front face (in Fig. 2) and a rear face (in Fig. 1), and do not seal side portions that connect each end of the front face to each respective end of the rear face.

Sistag fails to disclose or suggest a chest seal that peripherally surrounds a knife gate slot, as is recited in amended claim 25. For at least the above reasons and in view of the amendment to claim 25, reconsideration and allowance of claim 25 is respectfully requested.

Claims 26 and 28-30 all depend, either directly or indirectly, from claim 25, and Applicants respectfully submit that claims 26 and 28-30 are all patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 25.

Claim rejections under 35 U.S.C. 103(a)

In the Office Action, claims 1, 3, 5-8, 14-16, 18-20, 22, 32, and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Sistag.

Claim 1, as amended, recites, *inter alia*, a knife gate valve comprising a valve body comprising mating halves that in an assembled configuration define a flow channel extending through the body. A knife gate is adapted to slide within a gate channel between the halves of the valve body into an open position that allows flow within the flow channel and a closed position that blocks flow within the flow channel. A single gate seal is mounted in a gate seal chamber defined by the mating valve body halves. The gate seal has a sealing surface lining the gate channel for creating a seal with a perimeter of the knife gate, and an integral gasket extending from the gate seal in a direction opposite the sealing surface and compressed between the body halves. A chest seal is mounted in a chest seal chamber defined by the mating valve body halves. The chest seal comprises a body member having a peripherally enclosed knife gate slot for receiving the knife gate, expandable sealing surfaces on upstream and downstream sides of the knife gate slot for creating a seal with the knife gate, and one or more injection chambers adapted to receive an injectable packing. Each chamber has a cross-sectional area that is completely surrounded by the body member.

Claim 14, as amended, recites, *inter alia*, a knife gate valve comprising a valve body comprising a flow channel extending through the body. A knife gate is adapted to slide within a channel into an open position that allows flow within the flow channel and a closed position that blocks flow within the flow channel. A single chest seal is mounted in a chest seal chamber. The chest seal comprises at least one body member having an expandable sealing surface for creating a seal with the knife gate and at least one injection chamber adapted to receive an injectable packing. The chamber has a cross-sectional area that is completely surrounded by the body member.

Owens and Sistag are discussed above. A combination of Owens and Sistag, as suggested in the Office Action, would provide a knife gate valve with two seals, one seal on either side of a knife gate. This combination fails to disclose or suggest a single gate seal, as is recited in each of claims 1 and 14. Applicants therefore respectfully submit that claims 1 and 14 are each patentable over the cited prior art and respectfully request reconsideration and allowance of claims 1 and 14.

Claims 3 and 5-8 all depend, either directly or indirectly, from claim 1, and Applicants respectfully submit that claims 3 and 5-8 are all patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Claims 15, 16, 18-20, and 22 all

depend, either directly or indirectly, from claim 14, and Applicants respectfully submit that claims 15, 16, 18-20, and 22 are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 14. Claim 32 depends from claim 10, and Applicants respectfully submit that claim 32 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 10. Claim 33 depends from claim 13, and Applicants respectfully submit that claim 33 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 13. Applicants respectfully request reconsideration and allowance of claims 3, 5-8, 15, 16, 18-20, 22, 32, and 33.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Sistag, and further in view of U.S. Patent No. 4,206,905 to Dobler ("Dobler"). Claim 2 depends from claim 1, and Applicants respectfully submit that claim 2 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Applicants respectfully request reconsideration and allowance of claim 2.

Claims 4, 23, and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Sistag, and further in view of U.S. Patent No. 5,205,317 to Neuerberg et al. Claim 4 depends from claim 1, and Applicants respectfully submit that claim 4 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Claims 23 and 24 depend from claim 14, and Applicants respectfully submit that claims 23 and 24 are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 14. Applicants respectfully request reconsideration and allowance of claims 4, 23, and 24.

Claims 9 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Sistag, and further in view of U.S. Patent No. 6,375,157 to Van De Lande ("Van De Lande"). Claim 9 depends from claim 1, and Applicants respectfully submit that claim 9 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1. Claim 21 depends from claim 14, and Applicants respectfully submit that claim 21 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 14. Applicants respectfully request reconsideration and allowance of claims 9 and 21.

Claim 12 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Van De Lande. Claim 12 depends from claim 10, and Applicants respectfully submit

that claim 12 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 10. Applicants respectfully request reconsideration and allowance of claim 12.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Owens in view of Sistag, and further in view of U.S. Patent No. 3,154,287 to Clandinin. Claim 17 depends from claim 14, and Applicants respectfully submit that claim 17 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 14. Applicants respectfully request reconsideration and allowance of claim 17.

Claim 27 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sistag in view of Clandinin. Claim 27 depends from claim 25, and Applicants respectfully submit that claim 31 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 25. Applicants respectfully request reconsideration and allowance of claim 27.

Claim 31 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sistag in view of Van De Lande. Claim 31 depends from claim 25, and Applicants respectfully submit that claim 31 is patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 25. Applicants respectfully request reconsideration and allowance of claim 31.


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Conclusion

With the present amendments and arguments, Applicants respectfully submit that claims 1-33 are in condition for allowance. Prompt reconsideration and allowance is respectfully requested.

Respectfully submitted,



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